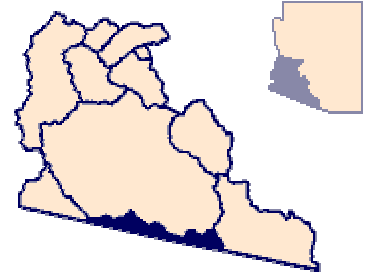


WESTERN MEXICAN DRAINAGE BASIN

The Western Mexican Drainage basin covers approximately 730 square miles along the southern portion of Arizona (Figure 15). The basin lies along the International Boundary with Mexico and contains all or part of the Ague Dulce, Ajo, Bates, Cabeza Prieta, Puerto Blanco, Sierra Pina, and Tule Mountains, and Cipriano and Quitobaquito Hills. Elevation ranges from about 4,800 feet above sea level in the Ajo Range, to 900 - 1500 feet above mean sea level on the inter - mountain basin floors. No perennial streams and only a few perennial springs exist in the area.



The hydrogeologic setting of the Western Mexican Drainage is similar to that of the surrounding basins in the Basin and Range province. Broad alluvial-filled valleys are dissected by elongated mountain ranges. The mountains are made up of igneous, metamorphic, and sedimentary rocks. The valleys contain the erosional remnants of the mountains in the form of unconsolidated gravel, sand, silt and clay deposits. These deposits compose the main water-bearing units in the basin (Bryan, 1925).

Detailed information is sparse; however, the Arizona Department of Water Resources (1988) estimates approximately 4.1 million acre-feet of groundwater are in storage to a depth of 1,200 feet below land surface. Depth to water in the developed areas of the Sonoyta Valley generally is less than 100 feet below land surface; dissolved solids content is less than 500 milligrams per liter (Leake and Clay, 1979). In 1985, a total of 220 acre-feet were withdrawn from the basin (Arizona Department of Water Resources, 1988). Anderson and others (1990) estimated that, prior to groundwater development in Arizona, approximately 2,400 acre-feet of groundwater crossed the border into Mexico annually. This scenario probably still exists because there has been little development in the basin.

The mountains generally are void of groundwater but, in some areas, wells may yield a few gallons of water to wells and springs (Bryan, 1925; Leake and Clay, 1979). Several springs exist in the eastern part of the basin, the most notable being Quitobaquito Spring. Quitobaquito Spring is located on the south side of the Quitobaquito Hills, just north of the International Boundary. Bryan (1925) described it as a "fissure spring" with its source located below the local water table. In 1917, Bryan measured the combined flow from the two springs' outlets to be 43 gallons per minute. Average flow in 1988 was 30 gallons per minute (0.06 cubic feet per second reported by the U.S. Geological Survey, 1989). A water quality sample collected at the Spring by the Arizona Department of Water Resources in 1988 had a total dissolved solids content of 671 milligrams per liter.